

ADEBAYO TEMILOLUWA E.

16/ENG05/001

MECHATRONICS ENG.

ENG 382

ENGINEERING MATHS IV

ASSIGNMENT 4 SOLUTION

$$10m_1 - 2m_2 + m_3 = 9$$

$$-2m_1 + 10m_2 - 2m_3 = 12$$

$$-2m_1 - 5m_2 + 10m_3 = 18$$

$$m_1 = 0.2m_2 - 0.1m_3 + 0.9$$

$$m_2 = 0.2m_1 + 0.2m_3 + 1.2$$

$$m_3 = 0.2m_1 + 0.5m_2 + 1.8$$

$$m_0 = [0; 0; 0]$$

1st iteration

$$m_1' = 0.2(0) - 0.1(0) + 0.9$$

$$m_1' = 0.9$$

$$m_2' = 0.2(0) + 0.2(0) + 1.2$$

$$m_2' = 1.2$$

$$m_3' = 0.2(0) + 0.5(0) + 1.8$$

$$m_3' = 1.8$$

2nd iteration

$$m_1'' = 0.2(1.2) - 0.1(1.8) + 0.9$$

$$m_1'' = 0.96$$

$$m_2'' = 0.2(0.9) + 0.2(1.8) + 1.2$$

$$m_2^2 = 1.74$$

$$m_3^2 = 0.2(0.9) + 0.5(1.2) + 1.8$$

$$m_3^2 = 2.58$$

3rd Iteration

$$m_1^3 = 0.2(1.74) - 0.1(2.58) + 0.9$$

$$m_1^3 = \cancel{0.474} \quad 0.99$$

$$m_2^3 = 0.2(0.96) + 0.2(2.58) + 1.2$$

$$m_2^3 = \cancel{1.836} \quad 1.908$$

$$m_3^3 = 0.2(0.96) + 0.5(1.74) + 1.8$$

$$m_3^3 = \cancel{2.79} \quad 2.862$$